

IN THE CLAIMS

Please amend the claims as follows:

Claim 1-22 (canceled)

Claim 23 (new): A hybrid fiber/coax network comprising:

a fiber optic link;

a plurality of coaxial cable links;

an optical distribution node coupled to the plurality of coaxial cable links and including a transmitter, the transmitter including,

a bandpass filter configured to receive a first analog signal from at least one of the plurality of coaxial cable links, and configured to selectively filter the first analog signal based on a predetermined frequency range,

an analog-to-digital converter configured to receive the first analog signal from the bandpass filter, and configured to convert the first analog signal into a baseband digital signal,

a status monitoring unit configured to generate status data representing an operational status of the optical distribution node,

a multiplexer configured to convert the baseband digital signal into a serial data stream format, and configured to multiplex the baseband digital signal and the status data to create a combined digital signal, and

an optical transmitter configured to transmit the combined digital signal via the fiber optic link; and

a head end coupled to the optical distribution node via the fiber optic link and including a receiver, the receiver including,

an optical receiver configured to receive the combined digital signal via the fiber optic link,

a demultiplexer configured to demultiplex the combined digital signal into the baseband digital signal and the status data,

a node status monitoring unit configured to receive the status data from the demultiplexer, and

a digital-to-analog converter configured to convert the baseband digital signal into a second analog signal.

Claim 24 (new): The hybrid fiber/coax network of claim 23, wherein the bandpass filter is configured to filter the first analog signal to produce signals within a frequency range of 5 MHz and 42 Mhz.

Claim 25 (new): The hybrid fiber/coax network of claim 23, further comprising:  
a data providing unit disposed in the transmitter and configured to transmit to the multiplexer additional data that includes at least one of framing data and data for bit error rate link performance testing,

wherein the multiplexer is further configured to multiplex the additional data, the baseband digital signal, and the status data to create the combined digital signal.

Claim 26 (new): The hybrid fiber/coax network of claim 25, further comprising:  
a data storage unit disposed in the receiver and configured to receive the additional data from the demultiplexer,

wherein the demultiplexer is further configured to demultiplex the combined digital signal into the additional data, the baseband digital signal, and the status data.

Claim 27 (new): The hybrid fiber/coax network of claim 23, wherein the analog-to-digital converter is configured to convert the first analog signal to the baseband digital signal at least at 850 mega-bits per second with a 10-bit data width.

Claim 28 (new): The hybrid fiber/coax network of claim 23, wherein the optical transmitter includes a 1310 nanometer digital laser configured to transmit the combined digital signal at a bit rate of up to approximately 1 gigabit per second.

Claim 29 (new): A hybrid fiber/coax network comprising:

- a fiber optic link;
- a plurality of coaxial cable links of a predetermined quantity;
- an optical distribution node coupled to the plurality of coaxial cable links and including a transmitter, the transmitter including,
  - a plurality of bandpass filters of the predetermined quantity, each configured to receive a first analog signal from a corresponding one of the plurality of coaxial cable links, and each configured to selectively filter the corresponding first analog signal based on a predetermined frequency range,
  - a plurality of analog-to-digital converters of the predetermined quantity, each configured to convert the corresponding first analog signal into a corresponding baseband digital signal,
  - a plurality of first multiplexers of the predetermined quantity, each configured to convert the corresponding baseband digital signal into a serial data stream format,
  - a status monitoring unit configured to generate status data representing an operational status of the optical distribution node,
  - a second multiplexer configured to multiplex the baseband digital signals received from the plurality of first multiplexers with the status data to create a combined digital signal, and
  - an optical transmitter configured to transmit the combined digital signal via the fiber optic link; and

a head end coupled to the optical distribution node via the fiber optic link and including a receiver, the receiver including,

an optical receiver configured to receive the combined digital signal via the fiber optic link,

a first demultiplexer configured to demultiplex the combined digital signal into the baseband digital signals and the status data,

a plurality of second demultiplexers of the predetermined quantity, each configured to convert a corresponding one of the baseband digital signals received from the first demultiplexer into a non-serial data stream format,

a plurality of digital-to-analog converters of the predetermined quantity, each configured to convert the corresponding baseband digital signals into a corresponding second analog signal, and

a node status monitoring unit configured to receive the status data from the first demultiplexer.

Claim 30 (new): The hybrid fiber/coax network of claim 29, wherein each of the plurality of bandpass filters is configured to filter the corresponding first analog signal to produce signals within a frequency range of 5 MHz and 42 Mhz.

Claim 31 (new): The hybrid fiber/coax network of claim 29, further comprising:  
a data providing unit disposed in the transmitter and configured to transmit to the multiplexer additional data that includes at least one of framing data and data for bit error rate link performance testing,

wherein the second multiplexer is further configured to multiplex the additional data, the baseband digital signals, and the status data to create the combined digital signal.

Claim 32 (new): The hybrid fiber/coax network of claim 31, further comprising:

a data storage unit disposed in the receiver and configured to receive the additional data from the first demultiplexer,

wherein the first demultiplexer is further configured to demultiplex the combined digital signal into the additional data, the baseband digital signals, and the status data.

Claim 33 (new): A hybrid fiber/coax network comprising:

a fiber optic link;

a plurality of coaxial cable links;

an optical distribution node coupled to the plurality of coaxial cable links and including a transmitter, the transmitter including,

a bandpass filter configured to receive a first analog signal from at least one of the plurality of coaxial cable links, and configured to selectively filter the first analog signal based on a predetermined frequency range,

means for receiving the first analog signal from the bandpass filter, and for converting the first analog signal into a baseband digital signal,

a status monitoring unit configured to generate status data representing an operational status of the optical distribution node,

a multiplexer configured to convert the baseband digital signal into a serial data stream format, and configured to multiplex the baseband digital signal and the status data to create a combined digital signal, and

an optical transmitter configured to transmit the combined digital signal via the fiber optic link; and

a head end coupled to the optical distribution node via the fiber optic link and including a receiver, the receiver including,

an optical receiver configured to receive the combined digital signal via the fiber optic link,

a demultiplexer configured to demultiplex the combined digital signal into the baseband digital signal and the status data,

a node status monitoring unit configured to receive the status data from the demultiplexer, and

means for converting the baseband digital signal into a second analog signal.

Claim 34 (new): The hybrid fiber/coax network of claim 33, wherein the bandpass filter is configured to filter the first analog signal to produce signals within a frequency range of 5 MHz and 42 Mhz.

Claim 35 (new): The hybrid fiber/coax network of claim 33, further comprising:  
a data providing unit disposed in the transmitter and configured to transmit to the multiplexer additional data that includes at least one of framing data and data for bit error rate link performance testing,

wherein the multiplexer is further configured to multiplex the additional data, the baseband digital signal, and the status data to create the combined digital signal.

Claim 36 (new): The hybrid fiber/coax network of claim 35, further comprising:  
a data storage unit disposed in the receiver and configured to receive the additional data from the demultiplexer,

wherein the demultiplexer is further configured to demultiplex the combined digital signal into the additional data, the baseband digital signal, and the status data.

Claim 37 (new): A method for handling data in a return path of a hybrid fiber coax network, comprising:

receiving a first analog signal from at least one of a plurality of coaxial cable links;  
filtering the first analog signal based on a predetermined frequency range;  
converting the first analog signal into a baseband digital signal;

generating status data representing an operational status of an optical distribution node of the hybrid fiber coax network;

converting the baseband digital signal into a serial data stream format;

multiplexing the baseband digital signal and the status data to create a combined digital signal;

transmitting the combined digital signal via a fiber optic link from the optical distribution node;

receiving the combined digital signal via the fiber optic link at a head end of the hybrid fiber coax network;

demultiplexing the combined digital signal into the baseband digital signal and the status data;

storing the status data in a node status monitoring unit of the head end; and

converting the baseband digital signal into a second analog signal.

Claim 38 (new): The method of claim 37, wherein the filtering includes filtering the first analog signal to produce signals within a frequency range of 5 MHz and 42 Mhz.

Claim 39 (new): The method of claim 37, further comprising:

storing additional data in the optical distribution node, the additional data including at least one of framing data and data for bit error rate link performance testing,

wherein the multiplexing further includes multiplexing the additional data, the baseband digital signal, and the status data to create the combined digital signal.

Claim 40 (new): The method of claim 39, further comprising:

storing the additional data in a data storage unit disposed in the head end,

wherein the demultiplexing further includes demultiplexing the combined digital signal into the additional data, the baseband digital signal, and the status data.

Claim 41 (new): The method of claim 37, wherein the converting of the first analog signal further includes converting the first analog signal to the baseband digital signal at least at 850 mega-bits per second with a 10-bit data width.

Claim 42 (new): The method of claim 37, wherein the transmitting further includes transmitting the combined optical signal via the fiber optic link with a 1310 nanometer digital laser configured to transmit the combined digital signal at a bit rate of up to approximately 1 gigabit per second.